



SPECIFICATIONS

gas-fired weatherproof duct furnace/ make-up air units

These specifications cover unit(s) _____ shown on the equipment schedule in the plans.

GENERAL

Contractor shall furnish and install a Modine model
WDG/WGD _____ WBG/WGB _____ WSG/WGS _____
WDP/WPD _____ WBP/WPB _____ WSP/WPS _____
gas-fired weatherproof duct furnace/make-up air unit with the performance as indicated on the equipment schedule shown in the plans. The weatherproof duct furnace shall have a rated input of _____ MBH and have
_____ A.G.A. (American Gas Association)
_____ C.G.A. (Canadian Gas Association)

design certification. All weatherproof enclosures shall be made of aluminized steel with a material thickness of not less than 20 gauge and shall be painted with a baked-on grey-green polyester powder paint for corrosion resistance. Models WGD/WDG and WPD/WDP shall be factory assembled to a rail type mounting base for roof or slab mounting. Models WGB/WBG and WPB/WPB shall be factory assembled to a _____ rail type mounting base (for roof or slab mounting).
_____ roof curb type mounting base (for roof curb mounting).
Models WGS/WSG and WPS/WSP shall be factory assembled to a roof curb type mounting base for either slab or roof curb mounting.

HEAT EXCHANGER AND BURNER

Heat exchanger shall be made of aluminized steel _____, stainless steel (Type 409) _____, with a material thickness of not less than 20 gauge. Heat exchanger shall be completely heli-arc machine-welded and shall have smoothly contoured stress-free tubes. Heat exchanger tubes and headers shall be made of the same material. Tubes shall be direct fired. The burner shall be made of the same material as the heat exchanger with a material thickness of not less than 28 gauge. Burner shall have non-clogging, slotted ports designed for good lighting characteristics without noise of extinction. The burner box assembly shall be completely removable from the side of the unit for servicing and cleaning. Burner manifold piping is to include a ground joint union to facilitate easy removal of the burner box assembly.

GAS CONTROLS

Units shall be provided with Control Code _____. Controls shall be designed for use with natural _____, propane _____ gas with a _____ specific gravity and Btu content of _____ Btu/cu. ft. at _____ feet elevation. All controls shall be rated for a maximum inlet pressure of 1/2 psi and shall be easily accessed through removal of the side panel of the weatherproof duct furnace.

If single-stage gas controls are specified the temperature shall be controlled by the use of a single-stage room thermostat.

If two-stage controls are specified the temperature shall be controlled by:

- _____ A Two-Stage Room Thermostat
- _____ A Two-Stage Duct Stat
- _____ A Two-Stage Duct Stat with a Two-Stage Room Override Stat

If mechanical modulating controls are specified the temperature shall be controlled by a hydrostatic-type sensing bulb located in the discharge air stream.

If electronic modulating controls are specified the temperature shall be controlled by:

- _____ Duct Sensing System
- _____ Duct Sensing System with Room Override Stat
- _____ Room Temperature Sensing

In addition to the above controls the following controls shall be included if checked:

- _____ Freeze Stat
- _____ Fire Stat
- _____ Summer/Winter Switch
- _____ Thermostat Subbase
- _____ Thermostat Guard
- _____ Remote Monitoring Panel
- _____ Gas Pressure Regulator (5 to 10 psi inlet)

BLOWER SECTION — MODELS WBG, WGB, WBP, WPB, WSG, WGS, WSP & WPS

The blower section shall be provided completely factory assembled to the duct furnace section and mounted on a base ready for installation. The blower section shall have full 1" insulation and shall include a blower and drive assembly. All units shall include blower(s) and one motor capable of delivering _____ CFM at _____ inch external static pressure to the unit. Motor shall be _____ HP, _____ volt, _____ Hz, _____ phase. Motor shall be totally enclosed and shall have thermal over-load protection built in if single phase. Blower drive shall be capable of achieving a blower rpm of _____ rpm. The blower section shall also include the following items if checked:

- _____ Filter Rack & Filters (1" _____ or 2" _____ cleanable type)
- _____ Fixed Position Fresh Air Damper
- _____ Fixed Position Fresh and Return Air Dampers
- _____ Fresh Air Damper with Two-Position Damper Motor
- _____ Fresh & Return Air Dampers with Two-Position Motor
- _____ Fresh & Return Air Dampers with Modulating Damper Motor
- _____ Rainhood & Bird Screen (shipped separately)

If modulating dampers are used they shall be controlled with the use of a:

- _____ Remote Manual Potentiometer
- _____ Proportional Temperature Controller
- _____ Economizer Package (Manual Potentiometer and Proportional Controller)

In addition to the above the following shall be provided if checked:

- _____ Disconnect Switch (Fusible type)
- _____ Motor Starter
- _____ Optional Transformer (to supply control voltage for 460v/3 ϕ systems)
- _____ Auxiliary Contact on Motor Starter
- _____ Convenience Outlet

DOWNTURN PLENUM SECTION — MODELS WSG, WGS, WSP & WPS

The downturn plenum section shall be provided completely factory assembled to the duct furnace and blower section and shall be mounted on a base ready for installation. The downturn section shall be provided with full 1" insulation.

ROOF CURBS

A factory supplied roof curb shall be provided for unit(s) _____ as shown on the plans. The roof curb shall be constructed of 0.0516 galvanized steel and shall be provided complete with nailing strips. The roof curb shall have a minimum height of 12".

All Modine Weatherproof Duct Furnace/Make-up Air Systems are supplied with intermittent pilot ignition systems. These systems are offered with non-lockout and lockout features for units operating on natural gas, and with the lockout feature only for units operating on propane gas. On all systems both the main burner gas and pilot gas are turned off 100% when the thermostat is satisfied.

Intermittent pilot ignition systems utilize an electric spark to light the pilot when there is a call for heat. Once the pilot is established a signal is sent to the ignition controller which tells the controller the pilot has been lit and it is safe to open the main gas valve. On non-lockout systems (natural gas only) the system will continuously spark and try to light the pilot until the pilot flame is established. On lockout type systems

(optional on natural gas, required on propane gas) the ignition system attempts to light the pilot for a period not to exceed 30 seconds. If the pilot flame is not established and proven within this time period the system will lockout, the pilot gas valve will be shut off and the electric spark discontinued. The system will not attempt to relight until power has been interrupted to the controls and the controls are reset via the thermostat.

The control descriptions listed below show the standard controls, codes 08 and 09, and various optional controls. The optional controls always include intermittent pilot ignition, but in addition allow other control features to be incorporated, such as two-stage, mechanical modulation, electronic modulation, etc.

OPTIONAL CONTROLS①	Control Code	Service Voltage①	Thermostat Voltage
Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, non-lockout type; overheat control and low-voltage transformer. For use with natural gas. (Also includes motor relay for blower and system models.)	08 09	115v 208v/230v	25v 25v
Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, lockout feature; overheat control and low-voltage transformer. For natural gas. (Also includes motor relay for blower and system models.)	28 29	115v 208v/230v	25v 25v
Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, lockout feature; overheat control and low-voltage transformer. For propane gas. (Also includes motor relay for blower and system models.)	78 79	115v 208v/230v	25v 25v
Two-Stage Intermittent-Duty Pilot Ignition includes: a two-stage automatic redundant gas valve and spark ignition controller, non-lockout type; overheat control and low-voltage transformer. For natural gas. (Also includes a motor relay for blower and system models.)	55 56	115v 208v/230v	25v 25v
Two-Stage Intermittent-Duty Pilot Ignition includes: a two-stage automatic redundant gas valve and spark ignition controller with lockout feature; overheat control and low-voltage transformer. For natural gas. (Also includes motor relay for blower and system models.)	65 66	115v 208v/230v	25v 25v
Two-Stage Intermittent-Duty Pilot Ignition includes: a two-stage automatic redundant gas valve and spark ignition controller, lockout feature; overheat control and low-voltage transformer. For propane gas. (Also includes a motor relay for blower and system models.)	95 96	115v 208v/230v	25v 25v
Mechanical Modulation w/Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, non-lockout type; mechanical modulating gas valve; overheat control and low-voltage transformer. For natural gas. Designed for 100% make-up air applications. Does not include modulating override feature. (Includes motor relay for blower and system models.) 50-90°F Temperature Range (Except 325 & 400 MBH, 60-100°F.)	51 52	115v 208v/230v	25v 25v
Mechanical Modulation w/Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, lockout feature; mechanical modulating gas valve; overheat control; low-voltage transformer. For natural gas. Designed for 100% make-up air applications. Does not include modulating override features. (Includes motor relay for blower and system models.) 50-90°F Temperature Range (Except 325 & 400 MBH, 60-100°F.)	61 62	115v 208v/230v	25v 25v
Mechanical Modulation w/Intermittent-Duty Pilot Ignition includes: a combination automatic redundant gas valve and spark ignition controller, lockout feature; mechanical modulating gas valve; overheat control and low-voltage transformer. For propane gas. Designed for 100% make-up air applications. Does not include modulating override feature. (Includes motor relay for blower and system models.) 50-90° F Temperature Range. (Except 325 & 400 MBH, 60-100°F.)	76 77	115v 208v/230v	25v 25v
Electronic Modulation w/Intermittent-Duty Pilot Ignition Non-lockout Type. For use with room sensing or duct sensing with remote temperature set-point adjustment. Includes modulating amplifier, modulator/regulator valve, combination main/pilot/manual valve, spark ignition controller (non-lockout type), and low-voltage transformer. Duct sensing requires addition of Maxitrol Duct Sensing System. Room sensing requires addition of Maxitrol Selectra-stat. (See Accessories for Duct Sensing System and Selectra-stat and temperature ranges.) System for use with Natural gas. When duct sensing is used, room override stat can be added. (Control system includes motor relay for blower and system models.)	41 42	115v 208v/230v	25v 25v
Electronic Modulation w/Intermittent-Duty Pilot Ignition Lockout Type. For use with room sensing or duct sensing with remote temperature set-point adjustment. Includes modulating amplifier, modulator/regulator valve, combination main/pilot/manual valve, spark ignition controller (lockout type), and low-voltage transformer. Duct sensing requires addition of Maxitrol Duct Sensing System. Room sensing requires addition of Maxitrol Selectra-stat. (See Accessories for Duct Sensing System and Selectra-stat and temperature ranges.) System is for use with Natural gas. Duct sensing system can be with room override stat. (Control system includes motor relay for blower and system models.)	45 46	115v 208v/230v	25v 25v

① When supply voltage to unit is 208v all units require a 208/240v XFMR to supply 240v to power venter motor.